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10/578,739	05/10/2006	James C. Tiernan	LJN09001USU(5969-101)	3387

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EXAMINER
RENNER, BRANDON M

ART UNIT	PAPER NUMBER
2461	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/578,739	TIERNAN ET AL.
	Examiner	Art Unit	
	BRANDON RENNER	2461	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 November 2010</u>.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>78-105</u> is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>78-105</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☐ All   b)☐ Some * c)☐ None of:
         1.☐ Certified copies of the priority documents have been received.
         2.☐ Certified copies of the priority documents have been received in Application No. _____.
         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

This communication is in response to the amendment filed 11/22/2010. The

amendment has been entered and considered.

-        Claims 78-105 are pending

Information Disclosure Statement

The information disclosure statement filed 11/22/2010 fails to comply with 37

CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document;

each non-patent literature publication or that portion which caused it to be listed; and all

other information or that portion which caused it to be listed. It has been placed in the

application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention   was
> made.

Claims 78, 79, 84-97, 100, and 102-105 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Eng US 5,963,557 in view of Grzeczkowski US 2003/0143946.

Regarding claim 78, Eng teaches a method of scalable multifunctional network

communication between presentation devices and service providers (point-to-point and

multicast communication within a network between a plurality of devices such as

subscriber stations which include set top boxes (Abstract and Column 1 Lines 6-16,

Column 2 Lines 56-58, see also Figure 7), comprising:

receiving at a head end control computer, via an uplink channel, upstream

messages from one or more consumer premise equipment (CPE) units and sending

from the head end control computer, via a downlink channel downstream messages to

the one or more of the CPE units (Figure 7 shows a headend (112) receiving

communications from a subscriber station via an upstream channel (f2 and f3) and the

headend sends, via a downstream channel (f1) messages to the subscriber stations

(150).;

receiving transmission time interval requests via the uplink channel at the head

end control computer from one or more of the CPE units or from the service providers

(each channel is divided into slots and each upstream channel carries information from

the stations (150) to the central controller. Reservation requests for time slots are sent

via the upstream channel to the headend control; Column 8 Lines 33-65 and Figure 7);

collecting received requests for transmission time intervals on the uplink channel

in a database and arranging at least some requests from the database in a request

queue update message at the head end control computer and sending the request

queue update message via the downlink channel to at least some of the CPE units (the

stations write reservation requests which are sent in the upstream control channel and

received (i.e. collected) by the central controller. The central controller then writes

control bit-streams in the downstream channel and sends that information to the

respective stations which requested the various reservation slots; Column 8 Lines 49-

65. The reservation request information is stored in the request register (292); see

Figure 14 (which is a representation of the components of a headend controller) and

Column 17 Lines 4-8).

wherein the head end control computer receives messages from one or more of

the CPE units and transfers them to a service provider control subsystems, and the

head end control computer receives messages from the service provider control

subsystem and transports them to the CPE units (packet filter communicates within the

cable network as well as other networks (30). The packets are thus received by the

headend from the CPE and transfer to a service provide system (other network) and

messages received from the service provider are transferred to the CPE units via

downstream channels as shown in Figures 7 and 14 and described in Column 17 Lines

14-22.

Eng does not explicitly disclose updating a master queue in the head end control

computer. However, Grzeczkowski teaches users which interact with a head end

control unit and a cable plant to obtain various services; Paragraphs 3 and 5. Further

yet, a centralized database (i.e. master queue) of information is located at the headend

and is updated on a regular basis to keep up with rapidly changing information;

Paragraph 54. Thus, Grzeczkowski effectively teaches the idea of updating a

centralized database at various points in time as claimed.

Thus it would have been obvious to one of ordinary skill in the art at the time of

the invention to modify the teachings of Eng to include updating a database as taught

by Grzeczkowski.

One would be motivated to make the modification such that the database is kept

up-to-date with constantly changing information.

Regarding claim 79, Eng teaches the uplink and downlink messages include

service messages and control messages (control messages request messages and

payload packets are transmitted in the upstream and downstream channels which are

used for setting up the connection and allocating resources to be used; Column 4 Lines

17-23 and Column 13 Lines 39-60).

Regarding claim 84, Eng teaches using TDMA (Column 3 Lines 15-16).

Regarding claim 85, Eng teaches modulating, transmitting, acquiring, tracking,

and demodulating signals on the uplink and downlink (Figures 10A and 14 show a

headend and subscriber station which transmit/receive messages between the two.

Further, the units include a modulator, transmitter, receiver, MAC controller, and

demodulator for the uplink and downlink channels).

Regarding claim 86, Eng teaches the use of system clocks (subscriber MAC

includes a transmit scheduler which utilizes a uniform system time clock maintained at

the headend. A synchronizer is used to maintain a system clock to ensure all station

system clocks are synchronized; Column 14 Lines 6-22 and Column 17 Lines 23-26).

Regarding claim 87, Eng teaches locking the uplink to the downlink for clock

synchronization (Figure 10A illustrates an upstream synchronizer with the upstream

connected (i.e. locked) to the downstream; Column 17 Lines 23-26).

Regarding claim 88, Eng teaches acquiring and tracking boundaries on the

downlink (transmit scheduler makes decisions using time slot identifier which were

received via the downlink channel from the headend; Column 14 Lines 32-42).

Regarding claim 89, Eng teaches the messages are carried in intervals and

some include a header (Figures 9 shows reservation request messages in slots (i.e.

intervals). Further, each slot includes a preamble (i.e. header); Column 11 Lines 50-51

see also Column 13 Line 57 which discusses each packet includes header information).

Regarding claim 90, Eng teaches organizing and transmitting control messages

(writing and transmitting control streams that indicate time slots (organized); Column 8

Lines 49-58. Figure 9 further illustrates the control messages being organized into a bit

stream).

Regarding claim 91, Eng teaches using message transmit queues and receive

queues in the headend (circuitry enables the headend and subscriber station to transmit

and receive messages between the two; Column 6 Lines 17-19. Further, the headend

includes a transmit data buffer; Column 17 Lines 19-20. Lastly, Figure 14 shows a

reservation request register (i.e. receive queue) (292) which stores incoming reservation

requests received from the subscriber stations).

Regarding claim 92, Eng teaches using a request queue at the headend (Figure

14 shows a reservation request register (i.e. request queue) (292) which stores

incoming reservation requests received from the subscriber stations).

Regarding claim 93, Eng teaches monitoring the downlink, inputting messages,

and maintain the downlink synchronization (headend monitors each slot to determine if

collisions have occurred; Column 5 Lines 6-12. Further, packets are input into the time

slots in a way to ensure synchronization of the channels/packets and modulate the

packet data; Column 16 Lines 6-18).

Regarding claim 94, Eng teaches demodulating and decoding messages (Figure

14 shows the headend circuitry which includes a demodulate decoder which is applied

to upstream packet payloads; Column 16 Lines 63-67).

Regarding claim 95, Eng teaches using a receive router at the headed for monitoring the received messages and routing them in accordance with requests (the headend examines the destination address of the packet header and transmits the packet to the downstream channel for reception by the subscriber stations; Column 4 Lines 8-15).

Regarding claim 96, Eng teaches using schedulers to for affecting transmission of messages (headend includes channel synchronizers (i.e. schedulers) and further schedulers packets for transmission by writing control packets which are transmitted to the subscriber station to determine the time slots in which packets are to be transmitted; Column 4 Lines 50-55).

Regarding claim 97, Eng teaches regulating the length and frequency of the transmitted messages (the length of slots needed for data transmission is determined and a range of frequencies is assigned for the transmitted data; Column 14 Lines 28-32 and Column 10 Lines 62-67).

Regarding claim 100, Eng teaches determining an order of upstream messages for transmission based on characteristics of the message (transmission of data is determined based on the assigned number of granted slots and start slot indication; Column 16 Lines 13-18).

Regarding claim 102, Eng teaches a headend unit for a scalable multifunctional network communication between presentation devices and service providers (point-to-point and multicast communication within a network between a plurality of devices such as subscriber stations which include set top boxes (Abstract and Column 1 Lines 6-16, Column 2 Lines 56-58, see also Figure 7), comprising:

A receiver to receive upstream messages from one or more consumer premise equipment (CPE) units and a transmitter for sending downstream messages to the one or more of the CPE units (Figure 7 shows a headend (112) receiving communications from a subscriber station via an upstream channel (f2 and f3) and the headend sends, via a downstream channel (f1) messages to the subscriber stations (150).;

receiving transmission time interval requests via the uplink channel from one or more of the CPE units or from the service providers and storing them in a database (each channel is divided into slots and each upstream channel carries information from the stations (150) to the central controller. Reservation requests for time slots are sent via the upstream channel to the headend control; Column 8 Lines 33-65 and Figure 7. The stations write reservation requests which are sent in the upstream control channel and received (i.e. collected) by the central controller. The central controller then writes control bit-streams in the downstream channel and sends that information to the respective stations which requested the various reservation slots; Column 8 Lines 49-65. The reservation request information is stored in the request register (292); see Figure 14 (which is a representation of the components of a headend controller) and Column 17 Lines 4-8).

wherein the head end control computer receives messages from the CPE units and transfers them to a service provider control subsystems, and the head end control computer receives messages from the service provider control subsystem and transports them to the CPE units (packet filter communicates within the cable network as well as other networks (30). The packets are thus received by the headend from the CPE and transfer to a service provide system (other network) and messages received from the service provider are transferred to the CPE units via downstream channels as shown in Figures 7 and 14 and described in Column 17 Lines 14-22.

Eng does not explicitly disclose updating a master queue in the head end control computer. However, Grzeczkowski teaches users which interact with a head end control unit and a cable plant to obtain various services; Paragraphs 3 and 5. Further yet, a centralized database (i.e. master queue) of information is located at the headend and is updated on a regular basis to keep up with rapidly changing information; Paragraph 54. Thus, Grzeczkowski effectively teaches the idea of updating a centralized database at various points in time as claimed.

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Eng to include updating a database as taught by Grzeczkowski.

One would be motivated to make the modification such that the database is kept up-to-date with constantly changing information.

Regarding claim 103, Eng teaches the uplink and downlink messages include service messages and control messages (control messages request messages and payload packets are transmitted in the upstream and downstream channels which are used for setting up the connection and allocating resources to be used; Column 4 Lines 17-23 and Column 13 Lines 39-60).

Regarding claim 104, Eng does not teach the headend is coupled to a group of service interface modules. However, Grzeczkowski teaches set-top boxes, are capable of video/audio communication services, which are coupled to peripheral equipment; Paragraphs 2 and 41).

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Eng to include coupling the headend to the service modules as claimed.

One would be motivated to make the modification to properly send/receive audio/video communications as taught by Grzeczkowski; Paragraph 2.

Regarding claim 105, Eng teaches receiving at the headend messages requests from the CPE and arranging them in an update message and sending it downstream to the one or more CPE units (headend receives the reservation requests and writes a control packet and sends the packet to the subscriber stations via the downstream channel; Column 4 Lines 50-55).

Claims 80-83, 98 and 99 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Eng in view of Grzeczkowski and further in view of Heath US

5,625,628.

Regarding claim 80, Eng teaches receiving messages requests from a CPE

(Figure 7 shows a headend (112) receiving communications from a subscriber station

via an upstream channel (f2 and f3) and the headend sends, via a downstream channel

(f1) messages to the subscriber stations (150)). Eng and Grzeczkowski do not disclose

an Aloha slot burst interval being scheduled by the headend. However, Heath teaches

a system executive performing task scheduling and control. Heath further teaches an

Aloha processor which has the ability to select a burst within the number of bursts

allocated; Column 4 Lines 23-35. Thus, the Aloha burst intervals are scheduled for

transmission as claimed.

It would have been obvious to one of ordinary skill in the art at the time of the

invention to modify the teachings of Eng to include scheduling Aloha burst intervals.

One would be motivated to make the modification such that Aloha bursts can be

successfully transmitted error free and in sequence as taught by Heath; Column 4 Lines

29-35.

Regarding claim 81, Eng teaches receiving at the headend messages requests

from the CPE and arranging them in an update message and sending it downstream to

the one or more CPE units (headend receives the reservation requests and writes a

control packet and sends the packet to the subscriber stations via the downstream

channel; Column 4 Lines 50-55).

Regarding claim 82, Eng teaches receiving service and control messages from

the CPE units at the headend in response to the time slots of the request queue

(subscriber stations receive the control packet from the headend which was created in

response to the reservation request messages; Column 4 Lines 50-55. The subscriber

stations then transmits the packets in the assigned timeslot; Column 4 Lines 55-62.

Further, the transmission scheduler of the subscriber stations schedules a transmission

of the payload packets from the queue in response to the received control packet;

Column 16 Lines 6-9).

Regarding claim 83, Eng teaches receiving service messages from the CPE and

in turn distributing them to the service provider control subsystems (the headend

receives messages from the subscriber stations and broadcasts (i.e. distributes) these

messages to each subscriber station and MAC controller; Column 4 Lines 2-15 see also

Figure 14 for upstream data being distributed to the media access controller).

Regarding claim 98, Eng teaches collecting requests in pools and forming the

request queue update message (Figure 7 shows a headend (112) receiving

communications from a subscriber station via an upstream channel (f2 and f3) and the

headend sends, via a downstream channel (f1) messages to the subscriber stations

(150). Further the headend monitors messages and sends feedback to the subscriber

stations; Column 5 Lines 7-23). Thus it can be seen that the plurality of requests (i.e.

pools) are collected before the update messages created as claimed).

Regarding claim 99, Eng teaches receiving update messages and placing the

messages in a request queue under control of an algorithm (Figure 13 shows

scheduling a transmission of data in response to the feedback status. Further, a

pending queue which contains data to be transmitted is checked to determine if data

need to be transmitted Column 14 Lines 25-27. Lastly, feedback is obtained

retransmission messages responses are formed by using an updating algorithm

parameter; Column 15 Lines 29-41).

Claim 101 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Eng in view of Grzeczkowski and further in view Dorenbosch et al. "Dorenbosch"

US 6,023,230.

Regarding claim 101, Eng and Grzeczkowski do not teach generating interval

requests for Aloha intervals by means of an Aloha algorithm. However, Dorenbosch

teaches a controller which schedules messages notifying the time slots to receive and

acknowledge messages using an Aloha contention algorithm; Column 6 Lines 12-25).

Thus it would have been obvious to one of ordinary skill in the art at the time of

the invention to modify the teachings of Eng to include an Aloha algorithm for

generating interval requests.

One would be motivated to make the modification to provide a wide area

coverage using multiple different frequencies.

Response to Arguments

Applicant's arguments filed 11/22/2010 have been fully considered but they are

not persuasive.

Regarding the independent claims, Applicant argues the prior art does not teach

or suggest processing the request queue update messages to update a master queue

in the headend control computer and further that application '946 doe not discuss time

intervals.

The Examiner respectfully disagrees. With respect to the time intervals, the

Examiner did not use the teachings of '946 to read on the claimed time intervals and

thus the argument is moot. The Examiner relied upon the teachings of Eng to disclose

receiving requests for various time intervals on the uplink channel and putting them in a

queue in the headend control computer. More specifically Eng teaches reservation

requests are written and sent in the upstream direction (i.e. uplink) and received (i.e.

collected) by the central controller. This information is stored in a reservation request

register (292) i.e. request queue of headend control computer shown in Figure 14) see

also Column 17 Lines 4-8). In other words, Eng discloses sending requests towards the

headend and storing those requests in the headend as claimed. Lastly, Eng discloses

in, Column 8 lines 49-65, that the requests are received by the central controller and the

central controller responds by assigning specific slots which indicate which of the

received slots the requesting party can utilize. In other words, Eng discloses the

headend sends the request information as well as assignment information to the

requesting device as claimed. Eng discloses all the limitations of the claim language as

shown above in the rejection however Eng did not disclose the idea of using a request

message to update a master queue in the headend. Thus, the Examiner relied upon

the teachings of Grzeczkowski to disclose the idea of updating a centralized database

(i.e. master queue within the headend) which is updated based on received information

sent/received to/from users; Paragraph 54. In other words, the users may select

information/programs and this information (requests) are used for communication

purposes between the headend and the users to update a central database.

The Examiner relied upon the teachings of Grzeczkowski solely for the idea of

using received information or requests as claimed for updating a centralized queue

(central database as taught by Grzeczkowski). Therefore, the combination of the

references is proper because Eng discloses the sending/receiving of requests in the

uplink and downlink direction between users and a headend and Grzeczkowski

discloses the ability to send/receive information between users and a headend to

update a central controller/database in the headend. Thus, all the claim limitations are

properly met by the combination of references.

In response to applicant's argument that the examiner's conclusion of

obviousness is based upon improper hindsight reasoning, it must be recognized that

any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does

not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA

1971).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to BRANDON RENNER whose telephone number is

(571)270-3621. The examiner can normally be reached on Monday-Friday 8-430.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/B. R./
Examiner, Art Unit 2461
1/14/2011
        /Huy D Vu/
        Supervisory Patent Examiner, Art Unit 2461